

## CLAIMS

1. A colloidal dispersion comprising particles of a rare earth compound, an acid and an organic phase, characterized in that it further comprises an antioxidant.
2. The dispersion as claimed in claim 1, characterized in that the antioxidant is selected from the substituted derivatives of phenol, particularly alkyl- or alkoxyphenol.
3. The dispersion as claimed in claim 2, characterized in that the antioxidant is selected from 2,6-di-tert-butylphenol, 2,6-di-tert-butyl paracresol, or 2-tert-butyl-4-methoxyphenol.
4. The dispersion as claimed in claim 1, characterized in that the antioxidant is selected from aromatic amines.
5. The dispersion as claimed in claim 1, characterized in that the antioxidant is selected from tocopherols.
6. The dispersion as claimed in one of the preceding claims, characterized in that the rare earth is selected from cerium, lanthanum, yttrium, neodymium, gadolinium, and praseodymium.
7. The dispersion as claimed in one of the preceding claims, characterized in that it comprises at least one other element (E) selected from the groups IIA, IVA, VIIA, VIII, IB, IIB, IIIB and IVB of the Periodic Table of the Elements.

8. The dispersion as claimed in one of the preceding claims, characterized in that the acid is an amphiphilic acid.
- 5 9. The dispersion as claimed in one of the preceding claims, characterized in that at least 90% of the particles are monocrystalline.
- 10 10. The dispersion as claimed in claim 9, characterized in that the particles have a  $d_{50}$  of between 1 and 5 nm, preferably between 2 and 3 nm.
- 15 11. The dispersion as claimed in one of claims 1 to 8, characterized in that it comprises particles not larger than 200 nm and in that it also has at least one of the following characteristics:
- said particles are in the form of aggregates of crystallites of which the  $d_{80}$ , advantageously the  $d_{90}$ , is not more than 5 nanometers, 90% (by weight) of the aggregates comprising 1 to 5, preferably 1 to 3 crystallites;
  - the acid is an amphiphilic acid comprising at least one acid with 11 to 50 carbon atoms, having at least one alpha, beta, gamma, or delta branch of the atom bearing the acidic hydrogen.
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- 30 12. The dispersion as claimed in one of claims 1 to 8, characterized in that it comprises particles of a rare earth compound that have been obtained by a method comprising the following steps:
- a) a solution is prepared comprising at least one soluble salt, preferably a rare earth acetate and/or chloride;
  - 35 b) the solution is contacted with a basic medium and the reaction mixture thus formed is maintained at a basic pH;

c) the precipitate formed is recovered by spraying or freeze-drying.

- 5        13. The dispersion as claimed in one of the preceding claims, characterized in that the acid is selected from fatty acids of tallol, soybean oil, tallow, linseed oil, oleic acid, linoleic acid, stearic acid and isomers thereof, pelargonic acid, capric acid,        lauric        acid,        myristic        acid, dodecylbenzenesulfonic acid, ethyl-2-hexanoic acid,        naphthenic        acid,        hexoic        acid, 10        toluenesulfonic acid, toluenephosphonic acid, laurylsulfonic acid, laurylphosphonic acid, palmitylsulfonic acid, and palmitylphosphonic acid.
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14. The use of a colloidal dispersion according to any one of claims 1 to 13, as an additive for fuels for internal combustion engines with enhanced stability of the particles of the rare earth 20        compound.
15. A fuel for an internal combustion engine, characterized in that it is obtained by mixing a colloidal dispersion according to any one of 25        claims 1 to 13 with a conventional fuel.